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DACTYLOGRAPHY

Can Fingerprints be Forged?

Criminals Have Tried to Escape Identification By Changing Ridges—But So Far All Have Failed

By MARJORIE VAN DE WATER

THE DIONNE quintuplets are said to have refused to be fingerprinted.

A police officer, trained to fingerprint reluctant criminals, was helpless in the face of infantile vocal protests and squirmings multiplied by five.

Fingerprints of these unusual little girls are wanted not because a career of crime is feared for them but for the sake of having positive identification of them in case they ever should get mixed up or lost, and also to provide scientific evidence of their resemblances to each other.

Even the quintuplets, born all at one time, do not have two hands among them with fingerprints exactly alike. Each human being who comes into the world brings with him his own distinctive sign of his identity on his hands and this is different from that of any other person who ever lived.

From infancy until the individual grows old and dies, the print will remain unchanged and distinctive.

Criminals have used all their ingenuity in attempts to get around the fingerprint system and avoid its positive identification. So far their efforts have failed.

But two new reports from the medical world have again raised the question, "Can fingerprints be altered or forged by a fugitive from justice?"

Leprosy Alters the Patterns

From Rio de Janeiro comes the report that leprosy alters the designs of the fingerprints.

Individuals attacked with leprosy, whose hands appear to be absolutely normal, may have the design of ridges on the finger tips so completely altered that positive identification would be impossible by this means.

This is the discovery reported by Dr. Leonidio Ribeiro to the Academy of Medicine in Paris. Studying the patients in a hospital for infectious diseases, Dr. Ribeiro told of finding scores of patients with such altered fingers.

But would any criminal be so desperate that he would prefer the living death

of leprosy to detection by the law? It would be necessary for him to keep the disease and not get well, for treatment restores the finger ridges to their normal pattern, Dr. Ribeiro says. Study of a soldier's fingerprints taken while he was in the army showed that the alterations lasted for four years and then disappeared almost completely in some of the fingers after eight months of treatment.

Department of Justice officials are of the opinion that, although leprosy may raise a new problem for police officers in countries where that disease is more common, in the United States it will not prove to be very important.

Criminals here have so far never tried to catch skin diseases to alter their fingers. But they have filed their fingers to remove the skin, they have burned them with acids and with fire, and they have cut them and torn the skin away.

John Dillinger, in his desperate flight

from the law, burned or corroded every one of his fingers, probably with a powerful acid, in a despairing effort to remove the tell-tale marks from his hands.

He may have thought that he succeeded. The regular patterns of loops and whorls made by the ridges of skin on his fingertips were broken by large splotches of burned areas where the ridges were literally eaten away. These areas show up as large white spots on the fingerprints taken after he was caught.

But all the pains he took (and pains is a very accurate word for it) were in vain. In the first place, police officers had no need for his fingerprints to identify him. He was only too well known to them without the prints.

But the prints, for all the mutilation, provided positive and conclusive identification.

Authorities agree that twelve points of similarity in any two fingers are sufficient to establish identity. On Dillinger's fingerprints, after all the destruction of ridges, experts found more than 300 such points.

Each one of his ten fingers still bore



FALSIFICATION THROUGH TRANSPLANTATION

False fingerprints can be made by transplanting skin from the palm of the hand, Dr. Howard L. Updegraff, of Hollywood, has demonstrated. Upper row shows the print of palm, a print of the forefinger obtained by rolling, and (at right) a plain impression of the same finger. Lower row shows prints of the same areas after the transplant. The palm area is beginning to show the ridges of the forefinger transplanted upside down, and the finger impressions show the ridges from the palm, also inverted. If you look closely, you can see where the "patch" joins the other skin.

plenty of distinguishing marks to pin his identity on him.

"Gus" Winkler—murderer, racketeer, bank robber—was another fugitive from justice who tried to disguise his identity by altering his fingerprints. He was probably inspired to do so by an accidentally acquired scar on his right forefinger. He slashed or tore the flesh of the fingers on his left hand until parts of the ridges were torn away. One finger he may have deliberately cut in such a way that the ridge pattern known to experts as a whorl then appeared to be a loop. At any rate, whether intentionally or not, the pattern was changed.

But these changes did not make identification impossible or even particularly difficult. It did change the classification of his prints in the police and Department of Justice files.

Single Print File Holds Answer

But the Department of Justice has the answer to this problem. They already had it before this question of mutilated prints came up. It lies in what is known as the single print file.

Here are kept the fingerprints of a certain group of particularly notorious and troublesome criminals, filed, not by the classification of all ten prints, but with all the thumbs in one file, index fingers in another, and so on.

When prints are found at the scene of a crime or on a kidnapping ransom note, or in any such incriminating location, it is seldom indeed that the guilty person is accommodating enough to leave all ten finger marks. But often it is possible to decide from its placing on the object with relation to other prints whether a single print is from a thumb, a first finger, or a little finger.

This print can then be taken to the single print file and quickly matched with that of the guilty person if his prints are contained in it.

Scars Are too Conspicuous

This file would also serve in identifying a person with altered fingerprints. In the first place, when such a person is arrested, police can easily see that the prints have been tampered with. The scars are conspicuous; the prints unnatural. Then, too, the police arresting him may have more than a vague suspicion of the identity of the man they have caught.

The next step is to classify the suspect's fingerprints, one by one, and search for them in the single print file, comparing each one with all those falling in that classification. Such a com-



KIDNAPPERS BEWARE: HIS FINGERPRINTS ARE ON FILE

This baby has kidnapping insurance in the form of fingerprints on file in the non-criminal file of the U. S. Department of Justice.

parison has quickly resulted in positive identification in every case that has come up so far.

So far there have been very few cases of fingerprint mutilation. Officials of the Department of Justice estimate that probably not more than a dozen instances have ever been known in the United States.

Desperate Devices in Vain

"Jack" Klutas, or "Handsome Jack," was another well known criminal who was willing to sacrifice the appearance of his fingers by savagely slashing them in order to remove the ridges. This attempt, too, was unsuccessful in preventing identification.

Few criminals have resorted to such efforts for eliminating fingerprints, because even if they should succeed, it would only be for a time. Most of these scars and alterations last only for a time. As the fingers heal, the ridges recover and the patterns are restored just as they were originally.

But even if the scars should be permanent, the criminal still could not evade detection unless he should also give up his career of crime. As soon as the new set of prints is put on file, then it would become necessary for him to go through the procedure of changing them all over again.

Could a desperate criminal in danger of his life forge his fingerprints? Could he have an expert surgeon transplant living skin from some other part of the body to the fingers so that perfect but false fingerprints would result?

Actually, this surgical feat has been accomplished—not to aid a criminal but as a mercy to a man whose hands had been badly burned. It is reported by Dr. Howard L. Updegraff, of Hollywood, California, who described the operation in the *American Journal of Surgery*.

It was necessary to provide the man with a new touch pad for the end of his right forefinger. Dr. Updegraff selected an area on the man's palms having ridges similar to those which appear on the fingertips. A patch of this skin was transplanted to the injured finger.

The result, after healing, was a completely altered fingerprint. Where there had been ridges interrupted by scar tissue, now there was a clear pattern, but this pattern was that of the palm, not that which had originally been on the finger.

Transplanting of ridged skin—the forging of fingerprints—is apparently a possibility.

Line Shows Transplanted "Patch"

But the Department of Justice is not greatly worried about it. In the first place, although a plain impression, taken by simply pressing the finger on paper, shows nothing to indicate tampering with the finger; a rolled impression such as used by the police and justice officials in fingerprint records shows plainly the seam where the transplanted skin joins the other.

In case police suspect, from examination of the prints or fingers of the prisoner, that a transplant has been made, search of the rest of his body

would reveal the place from which the transplant was taken.

The fantastic tales being told of the wonders of surgery in transplanting skin are not all true. A criminal could not take the fingertips of another person. He could not use an ape for this purpose.

Successful grafting of skin is a most difficult operation. Most of what has been learned of the art of plastic surgery was learned under the pressure of necessity after the Great War, when men learned to restore the faces of those bearing ghastly scars resulting from their wounds.

Surgeons Not Available

The operation must be performed by a very skillful surgeon, and such men command high fees and the greatest respect in the legitimate pursuit of their profession. What inducement would there be for such a man to serve the needs of an outlawed criminal seeking to escape from justice?

The skin must usually be transplanted from the patient's own body, for the skin has a natural tendency to reject any foreign matter, even foreign skin. Nearly everyone is familiar these days with the way the skin acts when vaccine is injected. The skin gets sore and red, and the result is a scar.

Much the same thing might happen if someone else's skin were transplanted to make a patch on yours. When it is necessary to use skin from another person, the surgeon selects someone closely related to the individual and someone with the same blood grouping, just as they do for a blood transfusion.

Even with the best of care, the operation often fails. So far as is known, no criminal has ever tried it.

Those who believe that future developments of medical science might enable criminals to resort to such fingerprint forgeries have suggested other means of positive identification to supplement the fingerprint system.

Even Identical Twins Differ

Although 2,000,000,000 persons live now on the earth and countless billions have preceded them, no two of them are exactly alike—not even identical twins. A careful look, especially with the help of X-ray or microscope, will reveal thousands of differences.

For this reason, X-ray pictures of teeth, the bone formation of the sinuses, or other parts of the body have been used for identification. Even the dentist's record of tooth fillings and artificial teeth is valuable in making identification. Such methods are particular-

ly valuable in identifying persons who have met death by drowning when the body may not be recovered in time to make ordinary methods of recognition easy. Fingerprints have seldom been useful in such cases in the past because law-abiding citizens have not had their prints on record anywhere.

Now, however, the Department of Justice maintains a file of fingerprints of citizens in good standing. Wealthy babies in danger of kidnapping have records there to hinder the kidnapper. Careful men of affairs file their prints as a matter of prudence—to avoid any possibility of becoming ill or dying unknown in a strange place, and to settle the authenticity of wills and other important documents beyond question.

Blood Vessel Pattern in Eye

Another scheme for identification was recently proposed by Drs. Carleton Simon and Isidore Goldstein, of New York City. A certain type of camera that has been in use by physicians for detecting eye diseases makes a photograph of the optic nerve and the network of blood vessels in the eye. Such a picture is quickly and easily taken right through the pupil of the eye.

Drs. Simon and Goldstein have worked out a system for classifying the resulting patterns, so that now they might be used as an identification in much the same manner as fingerprints are used. As with fingerprints, the pattern is different for each individual, and will not change unless the eye is destroyed.

Difficulties in Technique

The difficulty in the way of practical use of this system is the expense of having such a camera in every police station where prisoners must be identified, and the difficulty of training police officers in the technique of taking the pictures. Fingerprints can be taken by anyone who has a pad of ink and a piece of paper, if he has once seen it done correctly.

X-ray pictures, and probably these eye photographs, must always be taken with the camera at exactly the same angle if identical results are to be obtained. It is doubtful whether the county sheriff in Nebraska, the police chief in Honolulu, or the Federal agent in Washington could all take pictures of the same man that would match up exactly and afford positive identification.

With fingerprints, such long distance comparison is a matter of daily routine. When and if this easy system is ever defeated by criminals, then these other systems of identification remain to be developed.

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NOT LOCKED UP

Guajiro Indian princess, who has been married and is therefore allowed at large, with two little sisters who are not yet old enough to be locked up.

FISHERIES

Fish Used For Live Bait Threaten to Spoil Fishing

FISHERMEN in Utah's trout streams are threatened with serious damage to their sport because other fishermen make use of live bait.

This ironic situation has received the attention of W. F. Carbine, of the University of Utah. Small fish used as live bait sometimes slip off the hook, and live to grow up and reproduce. Prominent among fish thus introduced into Great Basin waters is the chub, a species not particularly esteemed for either sport or food.

This fish makes life harder for trout in two ways. It produces many more eggs, in the same spawning grounds that the trout frequent. The more numerous and hardy young chub gobble up a great deal of the food that the troutlings would normally have for themselves.

Young trout that survive this period of over-competition for nourishment find that their troubles are not over by any means. As they swim down the streams, the adult chub, which are big fish measuring up to sixteen inches in length, pounce on them and gobble them up in numbers. Young chub, on the other hand, are not taken for food to any extent by the adult trout.

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